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EXAMINER	
TRIMMINGS, JOHN P	
ART UNIT	**PAPER NUMBER**
2133	6

DATE MAILED: 11/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PR4

Office Action Summary	Applicati n No.	Applicant(s)	
	09/899,099	SUH, SANG WOON	
	Examiner	Art Unit	
	John P Trimmings	2133	

-- The MAILING DATE of this communication appears on the c ver sheet with the c rrespondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☒ Claim(s) *9 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/23/2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claims 1-17 are presented for examination.

Priority

The examiner acknowledges the applicant's claim of priority dated 07/07/2000.

Specification

The abstract of the disclosure is objected to because it is too long. See 37 CFR 1.72(b) and MPEP §608.01(b). Correction is required. See MPEP § 608.01(b).

Claim Objections

1. Claim 9 is objected to because of the following informalities: the 3rd line of this claim recites "outputted form the...", however the examiner believes that it should read "outputted from the...". Appropriate correction is required.

2. Claim 11 is objected to because of the following informalities: line 4 should have the word "signal" following the word synchronous. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. The subject of the Claim recites as follows: "An optical recording medium data reproducing". This is an incomplete phrase that does not describe anything that the examiner recognizes as pertaining to the invention, and so the examiner views the Claim as being vague and indefinite.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, and in view of Nagai et al., U.S. Patent No. 5852469.

As per Claim 1:

Yonemitsu et al. teaches a method of recording, reading, and reproducing data of predetermined size on an optical recording medium (column 13 lines 19-25) in a zigzag

manner (see column 12 lines 62-67 and column13 lines 1-17, as well as the illustration of the data arrangement in FIG.3). Although the data arrangement of Yonemitsu et al. is in a zigzag pattern, it is not precisely the same as claimed by the applicant. In Nagai et al., the same zigzag pattern as claimed by the applicant is taught (FIG.3A of Nagai et al.), as well as other patterns, with the purpose being to improve error correction. It would have been obvious to one with ordinary skill in the art at the time of the invention, and as suggested by Yonemitsu et al. (column 6 lines 52-67 and column 7 lines 1-32), to use several different patterns for robustness in error correction. A variation of the Yonemitsu et al. zigzag, namely the patterns described in Nagai et al., would have been obvious choices, and so the Claim 1 is rejected.

As per Claim 2:

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 1 above, and further under Yonemitsu et al. as follows; rearranging is described in column 8 lines 31-41, and shows that the data ends up in rows as shown in FIG.2. Therefore, the Claim 2 is rejected.

As per Claim 3:

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 1 above, and further under Yonemitsu et al. as follows; FIG.7 of Yonemitsu et al. teaches the layout of the invention, and in particular the modulator 104, and synchronous unit 105. Also, Yonemitsu et al. shows

that these units are a prior art (see FIG 16), and so these units have been used by others prior to the invention. Therefore, based on the dependence of this Claim on Claim 1, and since this particular Claim claims a prior art, the Claim 3 is rejected.

As per Claim 4:

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the dependent Claim 3 above, and further under Yonemitsu et al. as follows; FIG.7 of Yonemitsu et al. teaches the layout of the invention, and in particular the modulator 104, which is an EFM modulator (see column 8 lines 22-30). Also, Yonemitsu et al. shows that this unit is a prior art (see FIG 16), and so this unit has been used by others prior to the invention. Therefore, based on the dependence of this Claim on Claim 3, and since this particular Claim claims a prior art, the Claim 4 is rejected.

As per Claim 5:

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the dependent Claim 3 above, and further under Yonemitsu et al. as follows; FIG.16 of Yonemitsu et al. teaches the layout of prior art, and in particular the CIRC Encode Unit 1, which is an data scrambler with error correction (see column 1 lines 28-64). Also, since Yonemitsu et al. shows that this unit is a prior art, and since this unit has been used by others prior to the invention, based on the dependence of

this Claim on Claim 3, and since this particular Claim claims a prior art, the Claim 5 is rejected.

As per Claim 6:

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the dependent Claim 5 above, and further under Yonemitsu et al. as follows; FIG.2 and FIG.3 of Yonemitsu et al. teaches the layout of the scrambled data as it appears on the medium as a collection of data blocks. Also, since Yonemitsu et al. shows that this treatment of data blocks is a prior art as in FIG.19, and since this unit has been used by others prior to the invention, based on the dependence of this Claim on Claim 5, and since this particular Claim claims a prior art, the Claim 6 is rejected.

As per Claim 7:

Yonemitsu et al. teaches an apparatus for recording, reading, and reproducing data on an optical recording medium (column 13 lines 19-25) in a zigzag manner (see column 12 lines 62-67 and column13 lines 1-17, as well as the illustration of the data arrangement in FIG.3). Rearranging is described in column 8 lines 31-41, and shows that the data ends up in rows as shown in FIG.2. Although the data arrangement/rearrangement of Yonemitsu et al. is in a zigzag pattern, it is not precisely the same as claimed by the applicant. In Nagai et al., the same zigzag pattern as claimed by the applicant is taught (FIG.3A of Nagai et al.), as well as other patterns, with the purpose being to improve error correction. It would have been obvious to one

with ordinary skill in the art at the time of the invention, and as suggested by Yonemitsu et al. (column 6 lines 52-67 and column 7 lines 1-32), to use several different patterns for robustness in error correction. A variation of the Yonemitsu et al. zigzag, namely the patterns described in Nagai et al., would have been obvious choices, and so the Claim 7 is rejected.

As per Claim 8:

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 7 above, and further under Yonemitsu et al. as follows; FIG.16 of Yonemitsu et al. teaches the layout of prior art, and in particular the CIRC Encode Unit 1, which is an data scrambler with error correction (see column 1 lines 28-64). FIG.7 of Yonemitsu et al. teaches the layout of the Yonemitsu et al. invention, and in particular the modulator 104, and synchronous unit 105. Yonemitsu et al. also shows that these units are a prior art (see FIG 16), and so these units have been used by others prior to the invention. Therefore, based on the dependence of this claim on Claim 7, and since this particular Claim claims a prior art, the Claim 8 is rejected.

As per Claim 9:

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 7 above, and further under Yonemitsu et al. as follows; FIG.16 of Yonemitsu et al. shows prior art, in particular a Demodulator 9, and a descrambler and ECC Detecting (CIRC Decode 11) which are used to generate

the original user data. Therefore, based on the dependence of this claim on Claim 7, and since this particular Claim claims a prior art, the Claim 9 is rejected.

As per Claim 10:

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 7 above, and further under Yonemitsu et al. as follows; rearranging is explained in column 8 lines 31-53, where reproduction is accomplished in the opposite zigzag manner as when the data was encoded for recording. Therefore, since the art is taught by this reference, and since this Claim is dependent on Claim 7, the Claim 10 is rejected.

As per Claim 11:

Yonemitsu et al. teaches a method for recording data on an optical recording medium (column 13 lines 19-25) in a zigzag manner (see column 12 lines 62-67 and column13 lines 1-17, as well as the illustration of the data arrangement in FIG.3). Rearranging is described in column 8 lines 31-41, and shows that the data ends up in rows as shown in FIG.2., and then is recorded as in column 8 lines 11-31, as shown in FIG.7. The resultant application of this data arrangement on the optical disc surface would give the appearance that the data was transversely applied to the medium, which is what is being claimed. Although the data arrangement/rearrangement of Yonemitsu et al. is in a zigzag pattern, it is not precisely the same as claimed by the applicant. In Nagai et al., the same zigzag pattern as claimed by the applicant is taught (FIG.3A of Nagai et al.), as well as other patterns, with the purpose being to improve error

correction. It would have been obvious to one with ordinary skill in the art at the time of the invention, and as suggested by Yonemitsu et al. (column 6 lines 52-67 and column 7 lines 1-32), to use several different patterns for robustness in error correction. A variation of the Yonemitsu et al. zigzag, namely the patterns described in Nagai et al., would have been obvious choices, and so the Claim 11 is rejected.

As per Claim 12:

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 11 above, and further under Yonemitsu et al. as follows; Yonemitsu et al. teaches that only the C2 data is arranged in a zigzag manner as in FIG.2, and that the sync data (as shown) remains un-encoded in the zigzag manner. Therefore, based on dependence on Claim 11, the Claim 12 is rejected.

As per Claim 13:

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 11 above, and further under Yonemitsu et al. as follows; rearranging is described in column 8 lines 31-41, and shows that the data ends up in rows as shown in FIG.2., and then is linearly recorded as in column 8 lines 11-31, as shown in FIG.7. Therefore, based on dependence on Claim 11, the Claim 13 is rejected.

As per Claim 14:

Yonemitsu et al. teaches a method for reproducing data on an optical recording medium (column 13 lines 19-25) in a zigzag manner (see column 12 lines 62-67 and column13 lines 1-17, as well as the illustration of the data arrangement in FIG.3). Rearranging is described in column 8 lines 31-41, and shows that the data ends up in rows as shown in FIG.2., and then is recorded as in column 8 lines 11-31, as shown in FIG.7. The resultant application of this data arrangement on the optical disc surface would give the appearance that the data was transversely applied to the medium, which is what is being claimed. Yonemitsu et al. also teaches the reversing of the data in reproduction (see FIG.10). Although the data arrangement/rearrangement of Yonemitsu et al. is in a zigzag pattern, it is not precisely the same as claimed by the applicant. In Nagai et al., the same zigzag pattern as claimed by the applicant is taught (FIG.3A of Nagai et al.), as well as other patterns, with the purpose being to improve error correction. It would have been obvious to one with ordinary skill in the art at the time of the invention, and as suggested by Yonemitsu et al. (column 6 lines 52-67 and column 7 lines 1-32), to use several different patterns for robustness in error correction. A variation of the Yonemitsu et al. zigzag, namely the patterns described in Nagai et al., would have been obvious choices, and so the Claim 14 is rejected.

As per Claim 15:

Yonemitsu et al. teaches an apparatus for recording data on an optical recording medium (column 13 lines 19-25) in a zigzag manner (see column 12 lines 62-67 and column13 lines 1-17, as well as the illustration of the data arrangement in FIG.3). Rearranging is described in column 8 lines 31-41, and shows that the data ends

up in rows as shown in FIG.2., and then is recorded as in column 8 lines 11-31, as shown in FIG.7. The resultant application of this data arrangement on the optical disc surface would give the appearance that the data was transversely applied to the medium, which is what is being claimed. Although the data arrangement/rearrangement of Yonemitsu et al. is in a zigzag pattern, it is not precisely the same as claimed by the applicant. In Nagai et al., the same zigzag pattern as claimed by the applicant is taught (FIG.3A of Nagai et al.), as well as other patterns, with the purpose being to improve error correction. It would have been obvious to one with ordinary skill in the art at the time of the invention, and as suggested by Yonemitsu et al. (column 6 lines 52-67 and column 7 lines 1-32), to use several different patterns for robustness in error correction. A variation of the Yonemitsu et al. zigzag, namely the patterns described in Nagai et al., would have been obvious choices. As for the data sector, scrambler/ECC, modulator, sync insertion, and a recording unit, all of these parts of the apparatus are shown as prior art in Yonemitsu et al. (see FIG.14, 15, 16, 17, and 18), and has also been admitted by the applicant in the specification. Therefore it would have been obvious to one with ordinary skill in the art at the time of the invention, with the motivation to improve error correction, to combine Yonemitsu et al. and Nagai et al. in order to improve error correction.

As per Claim 16:

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonemitsu et al., U.S. Patent No. 5745505, in view of Nagai et al., U.S. Patent No. 5852469 as applied to the independent Claim 15 above, and further under Yonemitsu et

al. as follows; rearranging is described in column 8 lines 31-41, and shows that the data ends up in rows as shown in FIG.2., and then is linearly recorded as in column 8 lines 11-31, as shown in FIG.7. Therefore, based on dependence on Claim 15, the Claim 16 is rejected.

As per Claim 17:

The examiner is assuming that the Claim 17 is referring to an apparatus. Yonemitsu et al. teaches an apparatus for recording data on an optical recording medium (column 13 lines 19-25) in a zigzag manner (see column 12 lines 62-67 and column13 lines 1-17, as well as the illustration of the data arrangement in FIG.3). Rearranging is described in column 8 lines 31-41, and shows that the data ends up in rows as shown in FIG.2., and then is recorded as in column 8 lines 11-31, as shown in FIG.7. The resultant application of this data arrangement on the optical disc surface would give the appearance that the data was transversely applied to the medium, which is what is being claimed. Although the data arrangement/rearrangement of Yonemitsu et al. is in a zigzag pattern, it is not precisely the same as claimed by the applicant. In Nagai et al., the same zigzag pattern as claimed by the applicant is taught (FIG.3A of Nagai et al.), as well as other patterns, with the purpose being to improve error correction. It would have been obvious to one with ordinary skill in the art at the time of the invention, and as suggested by Yonemitsu et al. (column 6 lines 52-67 and column 7 lines 1-32), to use several different patterns for robustness in error correction. A variation of the Yonemitsu et al. zigzag, namely the patterns described in Nagai et al., would have been obvious choices. As for a reproducing unit, Yonemitsu et al. cites prior

art as in FIG. 16, and also teaches the reverse order processing in this figure in CIRC Decode 11. Therefore the Claim 17 is rejected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P Trimmings whose telephone number is 703-305-0714. The examiner can normally be reached on weekdays, 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 703-305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-2394.

John P Trimmings
Examiner
Art Unit 2133

jpt

Albert DeCady
Primary Examiner